



# Explorer F210

## Fuel Instrument

Installation and Operation Manual







# **NORTHSTAR**★

[www.northstarnav.com](http://www.northstarnav.com)



**IMPORTANT SAFETY INFORMATION**  
**Please read carefully before installation and use.**

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards, Obey all safety messages that follow this symbol to avoid possible injury or death.
	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
	CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.
	CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

**DISCLAIMER:** It is the owner's sole responsibility to install and use the instrument and transducers in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing safe boating practices.

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### FCC Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a normal installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an output on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced technician for help.
- A shielded cable must be used when connecting a peripheral to the serial ports.


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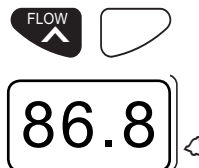
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

# 1 Operation

## Fuel Flow

Press the  key to display the current fuel flow rate.



## Other Fuel Functions

Press the  key to cycle through the possible functions. Each time the  key is pressed the display will show an identifier for 2 seconds before the value is displayed.



Fuel used on trip



Fuel used in total




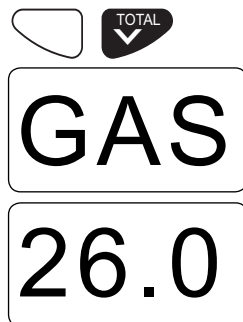
Low fuel alarm setting



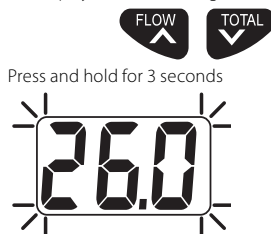
Fuel remaining in tank

## Changing the fuel remaining value



To change the value of fuel remaining in the tank, press the  key until the display indicates **GAS** for two seconds and then displays the current value.




Press and hold both keys for three seconds and the displayed value will begin to flash.

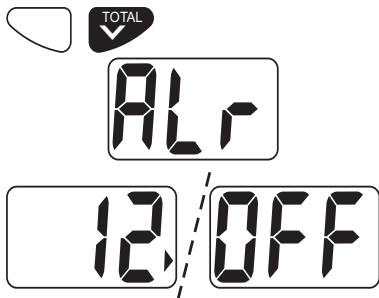


Press and hold for 3 seconds

Use the  and  keys to change the value. Press and hold both keys for one second to save this new value to memory and to exit this function. The display will indicate **GAS** and then the new value.

## Setting the low fuel alarm

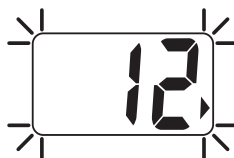
Use the  key to select the alarm function. The LCD will indicate **ALr** for two seconds and will then display the present alarm value. If no alarm value has been entered the LCD will indicate **OFF**.





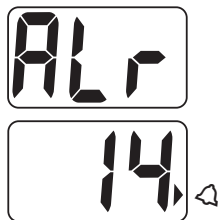
Press and hold both keys for three seconds and the displayed value will begin to flash.



Press and hold for 3 seconds



Use the  and  keys to select the desired alarm value. Press and hold both keys for one second to save this new value to memory and to exit this function. The display will indicate **ALr** and then the new value.



The arrow pointing at the alarm bell will be activated.

## Alarm activation

If the fuel remaining value drops below the fuel alarm value, the alarm will sound and the alarm arrow will flash.



Press any key to mute the alarm. The alarm arrow will continue to flash as long as the alarm condition remains.

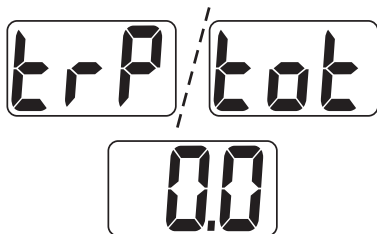
## Resetting the TRIP LOG or the TOTAL LOG

To reset a log, press the  key until the display indicates the name of the log to be reset.

Press and hold both keys for three seconds. Display will show **trP** or **tot** for 2 seconds before resetting to zero.



Press and hold for 3 seconds



The trip log value may be reset without changing the total log value.


If the total log is reset to zero, then the trip log will automatically reset to zero.

**Note:** If the total log exceeds 999 then both it and the trip log will be reset to zero.

## 2 Instrument Setup


### Selecting units of measure

The Explorer F210 will indicate fuel values in Litres, Imperial gallons or US gallons. To change the current setting perform the following steps:

1. Power up the unit while holding down the  key.



Hold down during power up

2. When the unit is on, release the  key. The display will indicate the current display unit with:







Imperial Gallons



US Gallons



Litres

3. To select the display unit desired, use the  and  keys to change the value.
4. To exit this mode, press and hold both the  and  keys simultaneously for one second.




Press and hold to exit

Information will now be indicated in the selected display unit.


### Calibration

The fuel transducer supplied with the fuel flow meter will provide readings at better than 5% accuracy. Individual calibration will increase this level of accuracy to better than 2% over a fuel flow range of 10.0 to 120 litres per hour. Use the following steps to calibrate your fuel flow meter:



1. Reset the total log value to zero (see previous page).
2. Use a known amount of fuel. The larger the amount the more accurate the calibration will be.
3. Take note of the actual volume of fuel used and the fuel used indicated by the total log. If these two totals are different the instrument may require calibration.
4. Press and hold the  key while applying power



Hold down during power up

5. Release the  key. Display will flash current total log value.



6. Use the  or  keys to make the display indicate the actual volume of fuel used.
7. Press both keys simultaneously for 1 sec to exit.



Press and hold for 1 second

The fuel flow meter is now calibrated.

## 3 Installation

### WARNING

IT IS VERY IMPORTANT TO INSTALL A FUEL FILTER BETWEEN THE FUEL FLOW TRANSDUCER AND THE FUEL TANK. THIS FILTER WILL CATCH LARGER PARTICLES OF DIRT FROM THE FUEL TANK AND PREVENT THE FINE GAUZE FILTER IN THE FUEL FLOW TRANSDUCER FROM BECOMING BLOCKED AS THIS MAY DAMAGE THE ENGINE.

#### Location

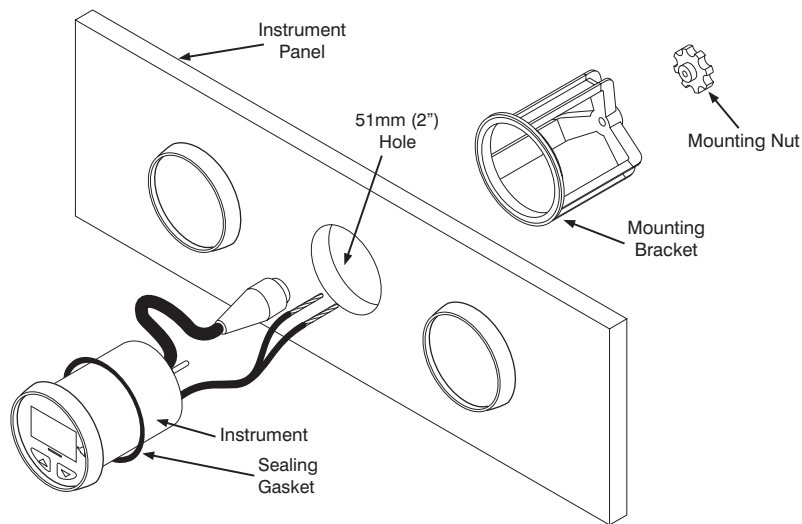
The Explorer F210 is designed for above or below deck installation. Select a position that is:

- On a flat surface
- At least 300mm (12") from a compass
- At least 500mm (20") from any radio
- Easy to read by the helmsman and crew
- Protected from physical damage
- Accessible to electrical cable connections

#### Mounting

The instrument panel must be 3mm to 19mm ( $\frac{1}{8}$ " to  $\frac{3}{4}$ " ) in thickness.

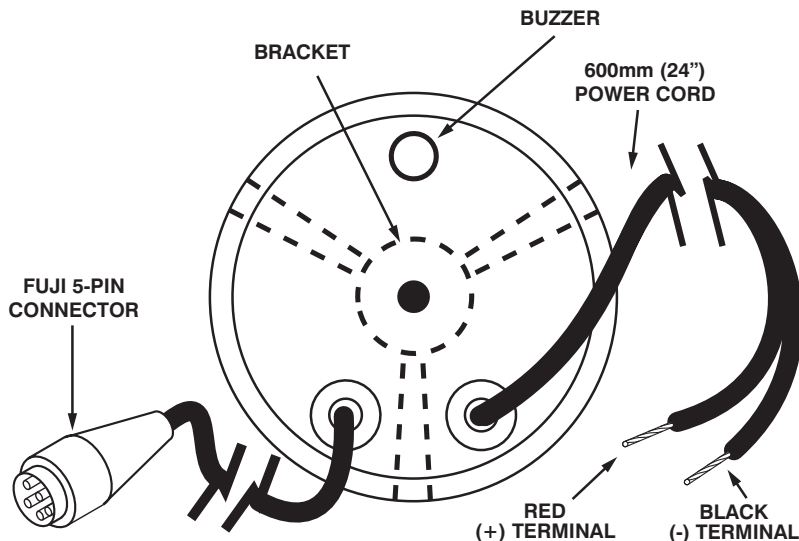
- Drill a 51mm (2") hole in the instrument panel.
- Remove brackets and insert the instrument so the back is flush with the instrument panel.
- Slide the bracket over the instrument and tighten the mounting nut until secure.





## Wiring Connection

- Keep electrical and transducer cables away from alternator or other noise generating electrical cables. Avoid connecting the instrument to power circuits that share loads with ignition, alternators, inverters and radio transmitters. Electrical power supply connections should always be as short as possible.
- Connect the red wire to the positive supply via a 1 amp fuse or a 1 amp circuit breaker. Connect the black wire to the electrical ground.
- Connect the fuel flow transducer to the five pin transducer inlet cable.



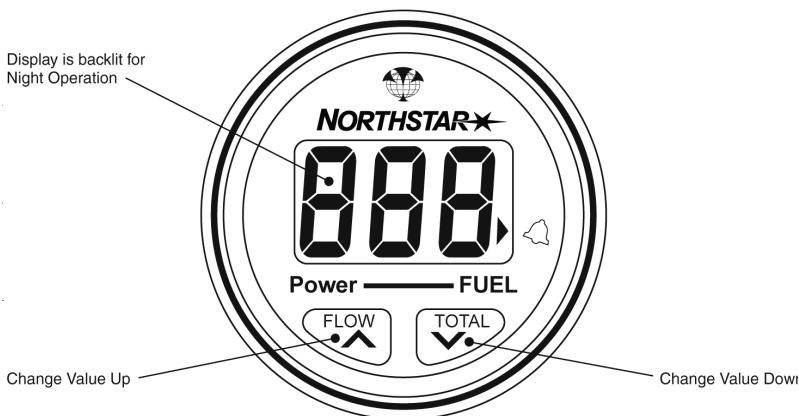
## Installation of the fuel flow transducer

The fuel flow transducer is designed for installation in Coast Guard approved 9.5 mm ( $\frac{3}{8}$ ") flexible fuel line. The transducer **MUST** be installed **AFTER** the main fuel filter. It should be located well away from any area where it will be effected by excessive heat or vibration from the engine. It is preferable to mount the transducer in a vertical position.

Drain all the fuel from the flexible fuel line. Cut the fuel line and using the fuel hose fixing clips provided install the transducer so that the FUEL IN side of the transducer connects to the fuel tank.

## Appendix A - Specifications

- **Size**  
Mount - 51mm diameter hole  
Depth behind face plate - 95mm max.  
Display - 3-character LCD
- **Colour**  
Black with texture on bezel.
- **Backlighting**  
Red coloured diffused lighting for display.
- **Water Integrity**  
Front will withstand direct water spray.
- **Alarm**  
Audio and visual alarm indicates remaining fuel total has dropped below a preset alarm value.
- **Flow**  
2.5 to 160 litres per hour  
0.5 to 43 US gallons per hour  
0.4 to 36 imperial gallons per hour
- **Logs**  
Logs record fuel used up to 999 display units.  
Total Log is saved in memory at power down.  
Both Trip Log and Total Log can be reset via the keypad.
- **Fuel Remaining**  
User enters a fuel value into memory via the key pad. The quantity of fuel used is automatically subtracted from this total. This value remains in memory at power down.
- **Operating Voltage**  
8 V DC to 16.5 V DC.
- **Operating Temperature**  
0 to 50°C (32 to 122°F).
- **Current Drain**  
70 mA max.
- **RF Interference**  
<6 dB quieting on any marine radio channel (with 3 dB gain antenna) within one metre of the instrument. Complies with CE EMC standards EN50081-1 and EN50082-1.



## **Appendix B - Troubleshooting Chart**

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### **No display:**

1. Check DC power connections and DC polarity with voltmeter.
2. Check fuse.

### **No flow reading indicated:**

1. Check connection to flow transducer.
2. Remove transducer from fuel line, blow through transducer, a whistling noise will indicate the turbine is rotating.

### **Low flow reading indicated:**

1. Check that the gauze filter is clean. If the filter is not installed fine strands may clog up the turbine.
2. Check calibration is correct.

### **High or erratic reading:**

Check fuel connections are well made. Air in fuel lines will cause erratic or high readings.

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